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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/724,267	11/26/2003	Leo Wenstrup	1-16405	1251

7590 01/25/2005

Attention: Mark A. Hixon, Esq.
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EXAMINER	
LE, DAVID D	

ART UNIT	PAPER NUMBER
3681	

DATE MAILED: 01/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/724,267	WENSTRUP ET AL.	
	Examiner	Art Unit	
	David D. Le	3681	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 November 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *03/18/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This is the first Office action on the merits of Application No. 10/724,267, filed 26 November 2003. Claims 1-4 are pending.

Documents

2. The following documents have been received and filed as part of the patent application:

- Declaration and Power of Attorney, received on 05/06/04
- Information Disclosure Statement, received on 03/18/04

Drawings

3. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-4:

- Claim 1 (lines 8-9) recites the limitation "said differential carrier". There is insufficient antecedent basis for this limitation in the claim.
- Claim 1 recites the limitation "wherein said threads of said bearing adjuster are engaged with said threads of said differential carrier assembly to adjust both the preload and/or the endplay of said input bearing." It is unclear what applicant is referring to by this claimed recitation "to adjust ***both*** the preload ***and/or*** the endplay of said input bearing". For the purpose of applying the art rejection, Examiner assumes the claimed recitation written as --wherein said threads of said bearing adjuster are engaged with said threads of said differential carrier assembly to adjust both the preload ***and*** the endplay of said input bearing.--

- Claim 3 recites the limitation "wherein no endcap is necessary for the differential carrier". It is unclear whether the claimed input bearing adjuster system includes an endcap for the differential carrier.
- Claim 3 recites the limitation "the differential carrier". There is insufficient antecedent basis for this limitation in the claim.

- Claim 4 recites the limitation "wherein no shims are necessary to adjust the position of the input bearing adjuster relative to the differential carrier". It is unclear whether the claimed input bearing adjuster system includes shims.
- Claim 4 recites the limitation "the differential carrier". There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by U. S. Patent No. 4,273,391 to Asberg.

Claims 1-4:

Asberg (Fig. 1; column1, line 9 – column 3, line 5) discloses a device for axial adjustment of a rotatable body comprising:

- A differential carrier assembly (being element 3, which is part of the differential assembly that is not shown) having a set of threads on an interior surface;
- An input bearing adjuster (4) having a complementary set of threads on an exterior surface;
- An input bearing system of a differential (not shown) comprising an outer race (being the portion of element 4 that contacts the roller bearings) in contact with said input bearing adjuster and an inner race in contact with an input shaft and an input bearing (see Fig. 1);
- A locking mechanism (10) to selectively secure said input bearing adjuster to said differential carrier assembly;
- Wherein said threads of said bearing adjuster are engaged with said threads of said differential carrier assembly to adjust the preload and/or the endplay of said input bearing;
- Wherein said locking mechanism comprises a screw (i.e., column 2, lines 44-48);
- Wherein no endcap is necessary for the differential carrier assembly (Fig. 1 does not appear to show an endcap); and

- Wherein no shims are necessary to adjust the position of the input bearing adjuster relative to the differential carrier assembly (Fig. 1 does not appear to use shims for adjusting the position of the input bearing).

8. Claims 1-4 are rejected under 35 U.S.C. 102(e) as being anticipated by U. S. Patent No. 6,705,965 to Sullivan.

Claims 1-4:

Sullivan (Figs. 1 and 3; column 2, line 30 – column 3, line 67) discloses a differential carrier assembly for a drive axle comprising:

- A differential carrier assembly (100) having a set of threads (Fig. 3, being the set of threads that is shown at the vicinity of reference number 124) on an interior surface;
- An input bearing adjuster (Fig. 3, element 116) having a complementary set of threads on an exterior surface;
- An input bearing system of a differential comprising an outer race (in contact with said input bearing adjuster (116) and an inner race in contact with an input shaft (104) and an input bearing (112);
- A locking mechanism (Fig. 3, being the combination of screws 114 and fasteners 128) to selectively secure said input bearing adjuster to said differential carrier assembly;

- Wherein said threads of said bearing adjuster are engaged with said threads of said differential carrier assembly to adjust the preload and/or the endplay of said input bearing (column 3, lines 55-60);
- Wherein said locking mechanism comprises a screw (114);
- Wherein no endcap is necessary for the differential carrier assembly (Fig. 3 does not appear to show an endcap); and
- Wherein no shims are necessary to adjust the position of the input bearing adjuster relative to the differential carrier assembly (column 3, lines 55-60).

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Green et al. (U. S. Patent Application Publication No. US 2004/0204282 A1) teaches an inter-axle differential lock shift mechanism comprising an input bearing adjuster system as shown in Fig. 16.
- Ziech et al. (U. S. Patent Application Publication No. US 2004/0087408 A1) teaches an interaxle differential including an input bearing adjuster as shown in Fig. 8.
- Gradu et al. (U. S. Patent No. 6,544,140) teaches a pinion mounting with direct tapered roller bearing arrangement as shown in Fig. 2.
- Glaze et al. (U. S. Patent No. 4,754,847) teaches an interaxle differential for a tandem axle assembly including a bearing adjuster system as shown in Fig. 2.

- Yoshioka (U. S. Patent No. 6,318,201) teaches a motor vehicle differential bearing pre-load mechanism as shown in Fig. 1.
- Klotz (U. S. Patent No. 5,363,722) teaches a connector assembly for a north-south automatic transaxle including a bearing adjuster as shown in Fig.8.
- Jones (U. S. Patent No. 3,715,936) teaches a differential bearing preload lock as shown in Fig. 1.
- Scudder et al. (U. S. Patent No. 5,269,731) teaches a differential unit having adjustable bearing assemblies as shown in Fig 1.
- Hagelthorn (U. S. Patent No. 5,560,687) teaches a controlled position axle nut and method system to preload tapered roller bearings as shown in Fig.2.
- Kuchta et al. (U. S. Patent No. 5,860,750) teaches an assembly including preloaded bearings as shown in Fig. 1.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David D. Le whose telephone number is 703-305-3690 or 571-272-7092. The examiner can normally be reached on Mon-Fri (0700-1530).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles A Marmor can be reached on 703-308-0830 or 571-272-7095. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ddl

Charles A Marmor 1/24/05

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SUPERVISORY PATENT EXAMINER
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